MICRO-ORGANISMS AND MENTAL ILLNESS

Many mental illnesses are the result of infection by micro-organisms including bacteria, viruses, parasites and fungi, but they can be dramatically improved when these invaders are eliminated.

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WHAT'S REALLY BUGGING YOU?

I'm going to give my psychoanalyst one more year, then I'm going to Lourdes.
— Woody Allen

Psychological treatment of chronic "mental illnesses" is often lengthy and of limited efficacy. Carolyn Raser was a healthy, energetic and upbeat psychologist who delighted in world travel and adventure. Yet after a trip to Bhutan in 2002, she returned to her home in California with severe depression, exhaustion and joints so swollen she could not open her hotel room door. Her third physician finally diagnosed her with rheumatoid arthritis and put her on multiple drugs, but the depression, lethargy and exhaustion persisted, even after nearly 100 subsequent treatments from acupuncturists, chiropractors and rehabilitation specialists. She had spent a small fortune and was feeling quite desperate and discouraged when she heard about a researcher at the Research Institute for Infectious Mental Illness and decided to give him a call.

After interviewing her, the researcher suggested a work-up for parasites and digestive disorders, which revealed the previously undetected presence of three protozoan parasites and a compromised secretory IGA system. Three weeks later, after following his suggestions for eliminating the infections, her depression and chronic exhaustion were gone and her energy and zest for life had returned, just in time to help her daughter with the delivery of her new baby. When told of her results, he quipped: "The road to health is paved with good intestines."

FOUR TYPES OF INFECTIONS

In considering an infectious aetiology to any chronic or acute mental illness, there are at least four categories to consider.

• First are those ***infections already recognised to induce psychiatric symptoms***. These include pneumonia, urinary tract infection, sepsis, malaria, legionnaire's disease, syphilis, chlamydia, typhoid, diphtheria, HIV, rheumatic fever and herpes (Chuang). While the psychiatric sequelae to these infections are noncontroversial, even so they are rarely screened for if the initial presentation is made to a mental health professional. Moreover, the significance of some of these infections may date back to prenatal development.

Research done at the Johns Hopkins Children's Center and published in the *Archives of General Psychiatry* in 2001 found that mothers with evidence of herpes simplex type 2 infection at the time of pregnancy had children almost six times more likely to develop schizophrenia later (schizophrenia develops at different ages, but usually some time after puberty). And in the USA, Europe and Japan, the birth excesses of those individuals who develop schizophrenia later in life closely mirror the seasonal distribution of *Ixodes* ticks (implicated in Lyme disease) at the time of conception.

• Second are those ***parasitic infections such as neurocysticercosis, where the brain is directly invaded by the infective agent*** through a well-established imagable mechanism (cysts, lesions, encephalitis, cerebral swelling, etc.). Signs of psychiatric disease (depression and psychosis) were found in over 65% of cases of neurocysticercosis (caused by a tapeworm whose incidence in the USA is rising due to demographic increases in foreign immigrant populations) (Forlenza).

While the mechanisms for psychiatric manifestations are easy to demonstrate when brain tissue is directly affected, there are also multiple reports in the literature of psychiatric

symptoms associated with other parasites like *Giardia*, *Ascaris psychosis* (roundworm) and *Trichinella*, viruses like Borna virus, and bacteria such as *Borrelia burgdorferi*, responsible for Lyme borreliosis (Lyme disease), and documentation of patients' "psychiatric" symptoms resolving when the underlying hidden infection is treated. Borna virus, well known to cause encephalitis and behavioural disturbances in horses and other mammals, is present in nearly everyone with schizophrenia and depression, yet is found in only a third of healthy controls; and Borna viral markers, isolated from the monocytes of patients with mood disorders, coincide with acute episodes of those mood disorders.

Dr J. Packman of Yale University wrote in 1992 that "Patients with parasitic loads are more likely to exhibit mental status changes, and there is an improvement in mental status of a subset of psychiatric patients following treatment for parasites". In fact, a review of 1,300 human cases of trichinosis in Germany found central nervous system involvement in up to 24% of the cases (meningeal inflammation or encephalitis) (Froscher).

Clinically, in cases like neurocysticercosis, the problem is not the lack of a well-defined mechanism but the lack of mental health practitioners qualified to make such a diagnosis or even suspect it. ("I wouldn't have seen it if I hadn't believed it.") Even infectious disease specialists tend to underestimate the scope of the problem, in part due to underreporting (neurocysticercosis is not a reportable condition in most states and the incidence of trichinosis is, we believe, vastly underestimated according to newly developed antibody assays only made available in the northern spring/summer of 2003).

In the late 19th century, schizophrenia and bipolar disorder went from being rare diseases to relatively common ones at the same time that cat ownership became popular.

• Next are those ***parasitic, bacterial and viral infections*** **like toxoplasmosis, strep, Borna virus and CMV**, where a strong statistical link to mental illness has been demonstrated but research is underway to establish a causal connection. In humans, acute infection with *Toxoplasma gondii* can cause brain lesions, changes in personality and symptoms of psychosis including delusions and auditory hallucinations.

Researchers at Rockefeller University and NIMH have suggested that after streptococcal infection, some children may develop abrupt-onset obsessive compulsive disorder within a matter of weeks (Swedo, NIMH).

Toxoplasma gondii can alter behaviour and neurotransmitter function. Since 1953, 18 out of 19 studies of *T. gondii* antibodies in persons with schizophrenia and other severe psychiatric disorders have reported a higher percentage of *T. gondii* antibodies in the affected persons. For example, in one large study, toxoplasmosis infection was twice as common in mentally handicapped patients as in healthy controls, and in a recent German study of "individuals with first-episode schizophrenia compared to matched controls, 42% of the former compared to just 11% of the latter had antibodies to *Toxoplasma*".

Two other studies found that exposure to cats (the primary carrier for toxoplasmosis transmission) in childhood was a risk factor for the development of schizophrenia. Furthermore, certain antipsychotic and mood-stabiliser drugs such as haloperidol and valproic acid inhibited this parasite *in vitro* at a concentration below that found in the cerebrospinal fluid and blood of individuals being treated with this medication, suggesting that some medications used to treat schizophrenia and bipolar disorder may actually work by inhibiting the replication of *Toxoplasma gondii* (Jones-Brando, Torrey, Yolken).

Paralleling these findings in the herbal realm, it may yet turn out that the potent naphtodianthrone activity against envelope viruses demonstrated by St John's wort is an element in its antidepressive effects. And the latest research suggests that hyperforin, a unique phloroglucinol antibiotic component of St John's wort, effective against multiple drug resistant gram-positive bacteria, is the most likely active ingredient responsible for its mood-elevating effects, not hypericin—to which almost all commercial preparations are standardised (Lawrance).

Other studies have shown that antipsychotic drugs like Thorazine, Haldol and Clozapine inhibit viral replication and that the cerebrospinal fluid of patients with recent-onset schizophrenia shows a 400% increase in reverse transcriptase activity, which is an important component of infectious retroviruses. (Hypericin also acts upon reverse transcriptase.) Furthermore, when the CSF from these patients was used to inoculate a New World monkey cell line there was a tenfold increase in reverse transcriptase activity, which suggests the presence of a replicating virus.

Independently, Dr Darren Hart of Tulane University School of Medicine found evidence of antibodies to retrovirus in the blood of half the patients he tested who were diagnosed with schizophrenia and bipolar disorder. Malhotra, looking at genetic predisposition factors, demonstrated the absence of CCR5-32 homozygotes in over 200 schizophrenic patients, which dramatically increases susceptibility to retroviral infection (F. Yee). (Yet bad genes alone cannot explain severe conditions like schizophrenia because such illnesses dramatically reduce the subject's reproductive fitness and would ultimately fall victim to natural selection. Instead, schizophrenia rates keep rising.)

It is research like this that has led Johns Hopkins virologist Robert Yolken and psychiatry professor and former special assistant to the Director of the National Institute for Mental Health Dr E. Fuller Torrey to believe that *Toxoplasma* is one of several infectious agents that causes most cases of schizophrenia and bipolar disorder. The idea is not new; in fact, as far back as 1922, the famous psychiatrist Karl Menninger hypothesised that schizophrenia was "in most instances the by-product of viral encephalitis". Torrey notes that in the late 19th century, schizophrenia and bipolar disorder went from being rare diseases to relatively common ones at the same time that cat ownership became popular. And Yolken designed a retrospective study of 2,500 families, showing that mothers of children who later developed psychoses were 4.5 times more likely to have antibodies to *Toxoplasma* than the mothers of healthy controls. (For those looking for a novel defence in traffic court, recent research suggests that people with toxoplasmosis have slower reaction times and are more than twice as likely to be involved in a traffic accident.)

Yolken was also the principal investigator in a recent study of patients who had suffered from schizophrenia for an average of over 22 years. In 21 schizophrenic patients who also tested positive for cytomegalovirus, there was a significant improvement in overall "psychiatric symptoms" when the subjects were given oral valacyclovir, an antiviral medication, for eight weeks (*American*

Journal of Psychiatry, December 2003). Another antiviral, amantadine, has been used in German studies to bring about greatly shortened hospitalisations and rapid remission of psychiatric manifestations in many of the 4–15% of psychiatric patients who tested positive for Borna disease virus (BDV), compared to 0–2% of normal subjects (Bode, Ludwig).

Smaller US studies found up to half of bipolar and schizophrenic patients to be Borna positive compared to none of the healthy controls (Lipkin). BDV is thought to be transmitted via the salivary and nasal secretions of horses, sheep, cattle, rabbits, goats, deer, cats and other animals. It is well known to cause encephalitis and behavioural disturbances in horses and other mammals, has tropism for limbic system and dopamine circuits, strongly correlates with depressive, bipolar, schizophrenic and dysthymic disorders in humans—and Borna viral markers, isolated from the monocytes of patients with mood disorders, coincide with acute episodes of those mood disorders.

Due to the frequency of cat ownership, a large percentage of the US population (up to 50%) has been exposed to *Toxoplasma*, but most immunocompetent carriers remain asymptomatic until another immunological burden such as HIV or a separate parasite weakens the host defences and precipitates pathogenic expression. That is what makes interpretation of the chronic state so tricky. At the Research Institute for Infectious Mental Illness, we make sure to try to identify any parasitic co-infections before deciding on an appropriate course of treatment.

• Finally, while toxoplasmosis gets a lot of attention due to the pioneering studies of Torrey and Yolken and the known mechanism of brain lesions, there are ***many other infective agents that may not target the brain specifically but can severely affect mental function*** through the cumulative downstream consequences of chronic infection. While the importance of this link in the aetiopathogenesis of mental illness is rarely recognised, these focal and systemic infections are very common and their psychiatric sequelae are often severe. (Parasites are the most common causes of mortality and morbidity in the world.)

In this nonspecific category are scores of parasites, protozoa, helminths, bacteria, fungi and viruses which, if not directly invading and disabling brain tissue and neurotransmitter function, invade indirectly by depleting the host of essential nutrients, interfering with enzyme and neuroimmune functions and releasing a massive load of waste products, enteric poisons and toxins which disrupt brain metabolism. (A single mature adult tapeworm can lay a million eggs a day; and roundworms, which infect about 25% of the world's population, lay 200,000 daily.)

"Patients with parasitic loads are more likely to exhibit mental status changes, and there is an improvement in mental status of a subset of psychiatric patients following treatment for parasites".

PARASITES AND COGNITIVE DYSFUNCTION

Remember, the brain is your body's most energy-intensive organ. It represents only 3% of your body weight but utilises 25% of your body's oxygen, nutrients and circulating glucose. Therefore, any significant metabolic disruptions can impact brain function first. This link is borne out statistically.

Mental patients have much higher rates of parasitic infection than the general population. Between 1995 and 1996, researchers at the University of Ancona did stool tests on 238 residents of four Italian psychiatric institutions and found parasites in 53.8% of the residents, including all of those residents with behavioural aberrations (Giacometti).

In our experience, parasites are often implicated in cognitive dysfunction and chronic emotional stress disorders. To the untrained eye, classic symptoms like apathy, exhaustion, confusion, appetite and memory loss, "nervous stomach", social withdrawal, lethargy and loss of sex drive and motivation are frequently assumed to signal a depressive disorder without an adequate differential diagnosis being made or even attempted. Adding to the confusion, classic indicators of acute infection such as fever or elevated antibodies often reverse themselves in chronic cases due to secondary hypothyroidism and immunodepression.

The problem with a "psychiatric" diagnosis is that, while it attempts to describe a symptom or set of symptoms, it yields no clue as to the root cause(s). Unfortunately, until Western psychiatry further recognises that the mind/body connection goes in both directions, patients will continue to suffer from a *de facto* lack of differential diagnostic criteria in clinically identical syndromes.

Even for those clinicians who recognise the devastating psychological effects that chronic intestinal, focal and even dental infections can have on normal brain function, accurate diagnosis presents formidable challenges. In fact, some standard parasite stool test procedures identify less than 10% of active infections and even the "politically correct" holistic speciality labs miss many infections that are nondetectable in faecal specimens, have inconsistent shedding patterns, are extra-intestinal or are otherwise hard to identify. For example, according to the World Health Organization, over two billion people are infected with worms, yet these will rarely show up in stool assays. (These numbers are not surprising, once you realise that the exposure vectors are potentially everything you eat, drink, breathe and touch. And if you think you have to leave the country to be exposed to exotic parasites in food, think again...)

TESTING PROCEDURES

At the Research Institute for Infectious Mental Illness, we use multiple labs with complementary strengths and a combination of advanced scientific diagnostic procedures including O & P (ova & parasites) microscopy, multifluid antigen and antibody detection, stool cultures, enzyme immunoassay, mucosal markers, inflammation assays, imaging techniques and other indirect laboratory indicators combined with extensive historical and clinical evaluations to identify chronic infectious stressors.

Patients previously diagnosed with "chronic candidiasis" often find that *Candida* was merely a co-factor or consequence of more significant infections and infestations which created obstacles to long-term cure.)

"Mental" symptoms often improve dramatically when hidden neuroimmune infections are treated successfully and normal brain

metabolism resumes, especially in "sudden-onset" syndromes.

After identifying and treating the primary infections, we focus on rebuilding the host's immunological defences and mucosal integrity to prevent relapse. Premature nutritional supplementation, even in frank anaemia, can be counterproductive, since some vitamins and minerals (i.e., iron) can be growth factors for micro-organisms which the body intentionally downregulates the uptake of during active infection. However, individually formulated subsequent nutritional supplementation is often helpful for full recovery.

We also screen clients for heavy metals, environmental chemicals, moulds and electromagnetic stressors, blood sugar problems, "brain allergies", food sensitivities, seasonal affective disorder (SAD), hormone disorders, neurotransmitter imbalances, nutritional deficiencies, diet and numerous other variables which can influence cognitive and affective function. To speed recovery, our evidence-based integrative medicine approach may include auxiliary treatments from consulting nutritionists, homoeopaths, acupuncturists, herbalists or bodyworkers.

The erosion or loss of brain function is arguably the most frightening and disabling experience a person can have. Almost by definition, standard psychological or psychiatric intervention postulates a dichotomy between disorders of the body and those of the mind and has a long way to go in recognising the importance of infectious aetiologies in mental health care. ∞

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Frank Strick is Clinical Research Director of the Research Institute for Infectious Mental Illness (RIIMI), based in Santa Cruz, California. His background is as a research nutritionist, for the past 20 years as Director of The Professional Institute for the Study of Somatopsychic and Environmental Disease.

RIIMI was an outgrowth of clinical observations that, despite nutritional supplementation and dietary and environmental controls, many clients needed to address underlying infections to really substantially improve their symptom profiles.

The Research Institute for Infectious Mental Illness is the first comprehensive institute of its kind in the USA. It provides testing, clinical and consulting services to clients from all over the world and educates professionals in this critical area of infectious aetiologies in mental health care. Long-distance phone consultations are also available.

The Institute can be reached by calling 1800 699 2466 (North American callers only) and then pressing pound (#) 8314255555 (patient scheduling inquiries only), or by emailing riimi@gawab.com.

TESTIMONIAL

In October of last year [2002] I spent a month in Asia, visiting temples and climbing in the foothills of the Himalayas. During the trip I became afflicted with red swollen hands, and such intense pain that I could not unlock the door of my hotel room. Upon my arrival at home, the pain and swelling spread to the feet and knees.

I found an excellent rheumatoid specialist who confirmed the diagnosis: osteo- and rheumatoid arthritis. I was put on Vioux and Salagen for dry mouth and told to come back in a month after more blood tests and that it might be necessary to change my medication to more powerful drugs. I also had severe depression, exhaustion and lethargy compared to my usually energetic self. My doctor and I discussed the possibility of parasites as a cause for my RA symptoms, but he could offer no help in testing and treatment.

In my own research, I found that traditional medicine treats the symptoms and attempts to stop damage to the joints. So I sought help within the alternative health community. I was fortunate to be referred to an individual who has done extensive research on intestinal problems/infections and the complex interventions needed to treat them successfully. He has directed my treatment with the aid of one of his physician associates. The results of my tests revealed the presence of parasites: *Blastocystis*, *Toxoplasmosis* and *Amoeobiosis*.

I recently completed a 20-day regimen of specially compounded antibiotics to kill the invaders and their respective eggs and cysts. The results were amazing. My depression is gone and my energy and zest for life has returned. I was able for the first time to go off all of the drugs. I feel great and all of my symptoms have cleared up—except for some residual joint stiffness, which may be the result of permanent damage, although we will now attempt to address this directly through nutritional supplementation.

Frank Strick's suggestions were more successful in half a month then nearly a hundred doctor's visits and treatments by three MDs, an acupuncturist (bi-weekly), a chiropractor and a rehabilitation specialist (which cost a fortune).

For the first time I feel like the source of my problems has been identified and cured, instead of endlessly chasing symptoms with no lasting relief.

Feel free to contact me by email at carolynr@got.net if you have any further questions about my results with this very advanced practitioner.

— Carolyn B. Raser (MA, Psychology), Santa Cruz, California, November 5, 2003